



US009768538B1

(12) **United States Patent**
Tulloch et al.

(10) **Patent No.:** **US 9,768,538 B1**
(45) **Date of Patent:** **Sep. 19, 2017**

(54) **PORTABLE ELECTRONIC DEVICE CONNECTOR**

(71) Applicant: **Apple Inc.**, Cupertino, CA (US)

(72) Inventors: **Brandon B. Tulloch**, Palo Alto, CA (US); **Gordon C. Cameron**, Cupertino, CA (US); **John Danby**, Mountain View, CA (US); **Amaury J. Heresztyn**, Redwood City, CA (US); **Nagarajan Kalyanasundaram**, San Jose, CA (US)

(73) Assignee: **Apple Inc.**, Cupertino, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **15/605,724**

(22) Filed: **May 25, 2017**

Related U.S. Application Data

(63) Continuation of application No. 15/269,876, filed on Sep. 19, 2016, which is a continuation of application (Continued)

(51) **Int. Cl.**
A41D 1/00 (2006.01)
H01R 12/77 (2011.01)
(Continued)

(52) **U.S. Cl.**
CPC **H01R 12/777** (2013.01); **A41D 1/005** (2013.01); **H01R 13/6205** (2013.01);
(Continued)

(58) **Field of Classification Search**
CPC .. A41D 1/005; H01R 13/6205; H01H 13/639; G04G 17/06; G04G 21/00; G04G 47/00; G04G 21/04; G04G 15/006
(Continued)

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,973,706 A 8/1976 Boyce et al.
6,155,841 A 12/2000 Sanyar
(Continued)

FOREIGN PATENT DOCUMENTS

CN 103280659 A 9/2013
CN 102856749 B 4/2015
(Continued)

OTHER PUBLICATIONS

U.S. Appl. No. 14/703,575, "Non-Final Office Action", dated Feb. 2, 2016, 13 pages (of-record in parent application).

(Continued)

Primary Examiner — Edwin A. Leon

(74) *Attorney, Agent, or Firm* — Kilpatrick Townsend & Stockton LLP

(57) **ABSTRACT**

In various embodiments, an electronic band for a wearable device having: a first band segment including a first affixing structure configured to couple the first band segment to the wearable device when inserted into a first channel of the wearable device, a processing unit, and a first electrical connector having a plurality of contact pins at least some of which are electrically connected to the processing unit; where the first electrical connector electrically connects the processing unit of the first band segment to a second electronic component positioned within the wearable device when the first affixing structure is inserted into the first channel.

20 Claims, 25 Drawing Sheets

